

WHAT IS CLAIMED IS

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1. A branch prediction method comprising the steps of:
- 10 a) determining branch prediction data indicating a state of branch prediction according to whether a branch is actually made or not;
- b) performing a branch prediction according to the branch prediction data; and
- 15 c) correcting the branch prediction data according to whether a branch is actually made or not.
- 20 2. The method as claimed in claim 1, wherein the step c) selects a predetermined branch prediction changing table from a plurality of branch prediction changing tables previously weighted according to a history of whether or not branches
- 25 are actually made, reads therefrom branch prediction updating data corresponding to the branch prediction data, and determines the read branch prediction updating data as a new branch prediction data.
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3. The method as claimed in claim 1, wherein: the step c) comprises the steps of:
- 35 c-1) obtaining branch prediction data corresponding to a branch instruction from a branch prediction table;

c-3) selecting a branch prediction

c-4) updating the branch prediction table to the branch prediction updating data of a prediction/updating table.

4. The method as claimed in claim 1,  
20 wherein the step c) sets weightings in transition  
directions of the branch prediction data according  
to preset profile information.

5. / An arithmetic and logic unit  
comprising:

a second part performing a branch prediction according to the branch prediction data;

35           a third part correcting the branch  
prediction data according to whether a branch is  
actually made or not.

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8. The unit as claimed in claim 5,

wherein said third part sets weightings in transition directions of the branch prediction data according to preset profile information.

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10                    9. An information processing apparatus comprises the arithmetic and logic unit claimed in claim 5.

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10. An arithmetic and logic unit comprising:  
a first part performing a branch prediction in response to a branch instruction;  
a second part updating a transition probability of branch prediction according to whether a branch is actually made or not;  
a third part detecting that a process is  
25 switched; and  
a fourth part initializing the branch prediction information when said third part detects that the process is switched.

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11. The unit as claimed in claim 10, wherein said fourth part performs initialization based on prediction information given to the branch instruction.

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12. The unit as claimed in claim 10,  
wherein said fourth part performs initialization  
according to a branch destination of the branch  
instruction.

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13. A branch prediction method comprising  
10 the steps of:

a) performing a branch prediction in  
response to a branch instruction;

b) updating a transition probability of  
branch prediction according to whether a branch is  
15 actually made or not;

c) detecting that a process is switched;  
and

e) initializing the branch prediction  
information when the step c) detects that the  
20 process is switched.

14. The method as claimed in claim 13,  
25 wherein the step e) performs initialization based on  
prediction information given to the branch  
instruction.

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15. The method as claimed in claim 13,  
wherein the step e) performs initialization  
35 according to a branch destination of the branch  
instruction.

16. An information processing apparatus comprising:

a first part performing a branch prediction in response to a branch instruction;

5 a second part updating a transition probability of branch prediction according to whether a branch is actually made or not;

a third part detecting that a process is switched; and

10 a fourth part initializing the branch prediction information when said third part detects that the process is switched.

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A8 17. The apparatus as claimed in claim 16, wherein said fourth part performs initialization based on prediction information given to the branch instruction.

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25 18. The apparatus as claimed in claim 16, wherein said fourth part performs initialization according to a branch destination of the branch instruction.

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